Listing of the Claims:

1.   (Currently Amended) A non-oriented optical character recognition apparatus for use in locating and reading markings on a silicon wafer moving along a path of travel, the apparatus comprising:

a camera positioned along the path of travel for taking a plurality of ~~sequential~~ line images of different portions of the ~~silicon~~ wafer across a substantial portion of the wafer in succession as the wafer moves along ~~on~~ the path of travel ~~to produce a first wafer image~~;

an illumination device positioned along the path of travel for projecting at least two different types of illumination along the path of travel intersected by the wafer in the area that the line images are taken, the illumination device is adapted to change the type of illumination in a synchronous manner with the taking of the plurality of line images; and

a processor in electronic communication with the camera for separating the line images ~~from the first wafer image~~ into at least two separate wafer images of different illumination, identifying the wafer marking on at least one of the at least two wafer images of different illumination, and reading the wafer mark.

2.   (Cancelled)

3.   (Cancelled)

4.   (Currently Amended) The optical character recognition apparatus of claim ~~2~~ 1 wherein the camera further comprises at least two individual cameras positioned adjacent one another and transverse to the path of travel, the cameras adapted to respectively take sequential and synchronous images with the changing type of illumination.

5.   (Original) The optical character recognition apparatus of claim 1 wherein the at least two different types of illumination include a bright field illumination, a dark field illumination, an incandescent illumination and LED illumination.

6.   (Cancelled)

7.   (Cancelled)

8.   (Original) The optical character recognition apparatus of claim 1 wherein the processor includes a first computer software component that receives the line images from the camera.

9.   (Original) The optical character recognition apparatus of claim 1 wherein the processor further comprises a second, third and fourth computer software component in electronic communication with the camera, illumination device and line path for monitoring the illumination device, movement of the path of travel and the rate of the path of travel respectively.

10.   (Original) The optical character recognition apparatus of claim 9 wherein the second, third and fourth computer software components control the illumination device, movement of the line path of travel and the rate of the path of travel respectively.

11.   (Original) The optical character recognition apparatus of claim 1 wherein the processor further comprises a fifth computer software component for locating an identifiable area wherein the wafer markings are located.

12.   (Original) The optical character recognition apparatus of claim 11 wherein the fifth software component locates an edge of the wafer, an edge notch of the wafer, the center of the wafer, and the area containing the wafer markings.

13.   (Original) The optical character recognition apparatus of claim 1 wherein the processor further comprises a sixth software component for reading the wafer mark.

14.   (Currently Amended) A non-oriented optical character recognition apparatus for use in locating and reading markings on a silicon wafer moving along a path of travel, the apparatus comprising:

a camera positioned along the path of travel ~~at a first angle from vertical with respect to the wafer on the path of travel~~, the camera adapted to take a plurality of <u>individual and</u> sequential line images of <u>different portions of the wafer in succession across substantially the</u> entire ~~the~~ silicon wafer <u>surface as the wafer moves along</u> ~~on~~ the path of travel ~~to produce a first wafer image~~;

~~a multiple~~ <u>an</u> illumination device positioned along the path of travel ~~at a second angle~~, the illumination device projects ~~a plurality of~~ <u>at least two</u> different types of illumination that sequentially change <u>to a different type of illumination</u> in a synchronous manner with the taking of each of the sequential line images <u>to produce a single interlaced image of the wafer surface</u>; and

a processor in electronic communication with the camera and the illumination device<u> adapted to separate the single interlaced wafer image into separate images having the same type of illumination, examine at least one of the separate images to locate the wafer markings and read the wafer markings.</u> ~~, the processor including six software components wherein the first software receives the line images, the second, third, and fourth software components function to monitor the camera, the illumination device, and the path of travel rate~~

~~respectively, the fifth software component functions to separate the first wafer image into a plurality of wafer images of different illumination type, and to locate an edge, notch, center and mark area of the wafer, and the sixth software component functions to read the wafer mark.~~

15.   (Currently Amended) A method of non-oriented optical character recognition for use in locating and reading markings on a silicon wafer traveling along a first path of travel, the method comprising:

generating a single <u>interlaced image of a</u> wafer ~~image~~ through <u>separately and</u> sequentially taking a plurality of line images of <u>different portions of the wafer in rapid succession across substantially the entire surface of</u> the wafer and <u>synchronously and</u> sequentially projecting alternating types of illumination in the area of the line image producing ~~a~~ <u>the</u> single <u>interlaced</u> wafer image of <u>the</u> sequential line images of alternating types of illumination;

locating an area on the wafer containing the wafer markings; and

reading the wafer markings to identify the wafer.

16.   (Original) The method of claim 15 wherein the step of locating an area on the wafer containing the wafer markings further comprising the steps of separating the single wafer image into individual wafer images having the same illumination and examining at least one of the separated wafer images to locate an edge, a notch on the edge, and the approximate center of the wafer.

17.   (Currently Amended) A method of non-oriented optical character recognition for use in locating and reading markings on a silicon wafer traveling along a first path of travel, the method comprising:

generating ~~a single~~ <u>at least one</u> wafer image ~~of~~ <u>comprising a plurality of separately and sequentially taken</u> ~~interlaced~~ line images of <u>different portions of the wafer across a</u>

substantial portion of the wafer as the wafer moves along the path of travel; ~~alternating types of illumination;~~

~~separating the interlaced single wafer image into separate wafer images of the same illumination type;~~

locating an area containing the wafer markings on the at least one wafer image; and

reading the wafer markings to identify the wafer.

18.   (Cancelled)

19.   (Cancelled)

20.   (Currently Amended) The method of claim 17 wherein the step of locating an area containing the wafer markings further comprising examining ~~at least one of the separated wafer images~~ the at least one wafer image, ~~selecting at least one of the separated images,~~ locating a notch on the edge of ~~at least one of the selected wafers~~ of the wafer, and locating the approximate center of the ~~selected images~~ wafer.

21.   (Original) The method of claim 17 further comprising the step of conducting a geometric transform of the area containing the wafer markings prior to reading the wafer markings to improve visibility of the markings.

22.   (Original) The method of claim ~~17~~ 25 further comprising examining each of the separated images and conducting a geometric transform on the area containing the wafer markings on each of the separated wafer images having different illumination and individually examining the transformed areas containing the wafer markings to determine if the wafer markings can be read on any one of the separated, transformed areas containing the wafer

markings.

23.   (Original) The method of claim 22 further comprising the step of combining at least two of the separated, differently illuminated and transformed areas containing the wafer markings to determine if the wafer markings can be read in the combined areas housing the markings.

24.   (New) The method of claim 17 further comprising the step of providing alternatingly and synchronously different types of illumination on the wafer for each line image taken.

25.   (New) The method of claim 24 further comprising the step of separating the sequentially taken line images into at least two wafer images each wafer image having the same type of illumination.

26.   (New) The method of claim 25 wherein the step of separating the sequentially taken line images occurs as the sequential line images are taken.

27.   (New) The method of claim 24 wherein the at least one wafer image comprises a single interlaced image of the sequential line images having different illumination.

28.   (New) The optical character recognition apparatus of claim 1 wherein a single interlaced image including the sequentially taken line images under alternating illumination type is generated prior to separation of the line images.

29.   (New) The optical character recognition apparatus of claim 1 wherein the processor is adapted to separate the wafer image into the at least two separate wafer images of

different illumination as the line images are sequentially taken.

30.   (New) A non-oriented optical character recognition apparatus for use in locating and reading markings on a silicon wafer moving along a path of travel, the apparatus comprising:

an illumination device positioned along the path of travel adapted to alternatingly project at least two different types of illumination across the wafer in succession as the wafer moves along the path of travel,

an image recording device positioned along the path of travel adapted to take a plurality of sequential line images of the wafer synchronous with the alternating types of illumination; and

a processor in electronic communication with the image recording device adapted to separate the sequential line images having the same type of illumination and to identify and read the wafer markings.

31.   (New) The optical character recognition apparatus of claim 30 wherein the processor is adapted to generate a single interlaced image including the sequentially taken line images of alternating illumination.

32.   (New) The optical character recognition apparatus of claim 30 wherein the separation of the line images having the same illumination type occurs as the sequential line images are taken and produces at least two wafer images each image having the same illumination type.